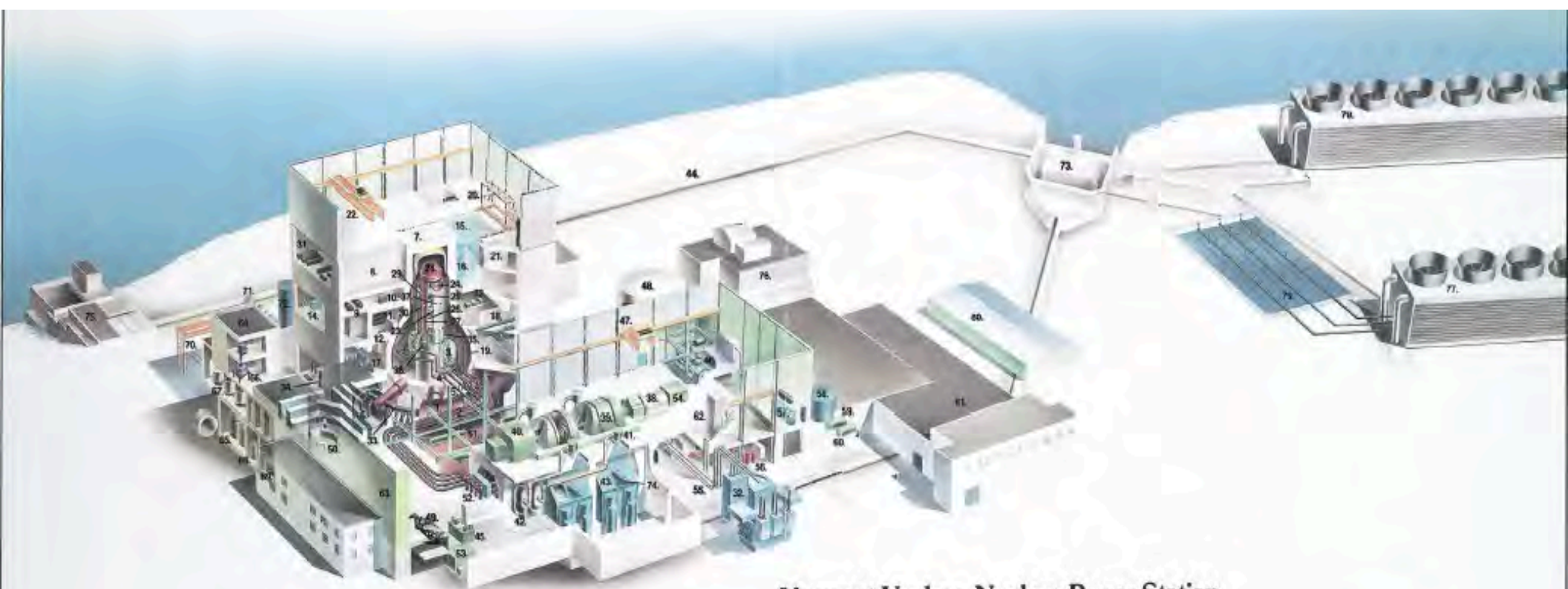


# NorthStar VTY Decommissioning



Vermont Yankee Nuclear Power Station

NDCAP Update 09/20/2021

- |   |                                  |                                  |                                      |
|---|----------------------------------|----------------------------------|--------------------------------------|
| 1. Torus  | 21. New fuel storage vault       | 41. Intercept valve              | 61. Receiving and stores             |
| 2. Main steam lines                               | 22. Overhead crane               | 42. Moisture separator           | 62. Elevator                         |
| 3. Recirculation pump                             | 23. Biological shield well       | 43. Main condensers              | 63. Turbine building                 |
| 4. Inboard main steam isolation valve             | 24. Steam dryer                  | 44. Cooling water recirculation  | 64. Rad waste building               |
| 5. Outboard main steam isolation valve            | 25. Steam separator              | 45. Turbine oil tank             | 65. Condensate phase separator tanks |
| 6. Downcomers                                     | 26. Fuel assemblies              | 46. Emergency diesel generators  | 66. Centrifuge                       |
| 7. Shield plug                                    | 27. Reactor vessel               | 47. Overhead crane               | 67. Cask filling area                |
| 8. Dryer/separator storage pool                   | 28. Vessel head                  | 48. Condensate storage tank      | 68. Spent resin tank                 |
| 9. Reactor building cooling water heat exchangers | 29. Main steam outlet            | 49. Feedwater pump               | 69. Waste sludge tank                |
| 10. Reactor building cooling water pump           | 30. Recirculation water outlet   | 50. Control room                 | 70. Traveling hoist                  |
| 11. Reactor water cleanup heat exchanger          | 31. Uninterruptible power supply | 51. High pressure heaters        | 71. Sample tanks                     |
| 12. Reactor water cleanup pump                    | 32. Main transformer             | 52. Main stop valve              | 72. Surge tank                       |
| 13. Vital AC motor generator set                  | 33. Ring header                  | 53. Turbine lub oil storage tank | 73. Discharge structure              |
| 14. Recirculation motor generator set             | 34. RH/R service water pump      | 54. Excitation cubicle           | 74. Low pressure heaters             |
| 15. Fuel pool (spent fuel storage)                | 35. Recirculation inlets         | 55. Main generator leads         | 75. Intake structure                 |
| 16. Spent fuel rack                               | 36. Manifold                     | 56. Make-up demineralizers       | 76. Advanced oil-gas building        |
| 17. Hydraulic control units                       | 37. Feedwater inlet              | 57. House heating boiler         | 77. West cooling tower               |
| 18. Standby gas treatment                         | 38. Generator                    | 58. Cleanwell                    | 78. East cooling tower               |
| 19. Primary containment wall                      | 39. Low pressure turbine         | 59. Acid storage tank            | 79. Spray pond                       |
| 20. Refueling bridge                              | 40. High pressure turbine        | 60. Causal storage tank          | 80. Warehouse                        |

NorthStar Nuclear Decommissioning Company, LLC



# Simple Priorities



SAFETY with all we do: Target Zero (  Accidents)



Do it Right. Do it Safe.

# Performance Update

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- SAFETY: **Acceptable**

Zero NorthStar OSHA Recordable Lost Time Accidents to date, with over 800,000+ person hours worked on site since sale on January 11<sup>th</sup> 2019.

- REGULATORY: **GOOD**

NRC: Zero Cited and Non-Cited Violations for all of 2019, 2020, and 2021 to date.

- PRODUCTION: **Acceptable**

Overall project schedule on track. Reactor removal project remains behind, but still not a significant impact. Bulk Decom work and Site Characterization continues advancing ahead of initial projections.

# Project Schedule – Overview (Re-Cap)

							Partial Site Release		License Termination (ISFSI) Target 12.31.52)
	2020	2021	2022	2023	2024	2025	2026	2027 thru 2051	2052
<b>Spent Fuel Management</b>									Final Site Restoration & License Termination
<b>Site Restoration &amp; Final Site Survey</b>									
<b>Large Component Removal</b>									
Reactor Vessel & Internals									
Condenser									
Large Pumps & Motors (Circ H2O, Recirc, etc)									
Main, Start-Up & Aux Transformers									
<b>Decontamination &amp; Demolition</b>									
Asbestos& Lead Paint Removal									
Security Structures and Equipment									
Turbine Warehouse									
Aog									
Rotors and Storage Structures									
Stack									
Intake									
Reactor Building									
Admin Building									
Control Building									
Rad Waste									
Discharge									
Service Building									



# Reactor Vessel Segmentation Update

Reactor Head **DONE**  
Steam Dryer **DONE**  
Steam Separator **DONE**  
Shroud Head **DONE**  
Feedwater Sparger **DONE**  
Top Guide (Upper Grid) **DONE**  
Guide Tubes **DONE**  
Core Plate **DONE**  
Shroud Cylinder **DONE**  
Jet Pump Assemblies **DONE**

All segmentation equipment remains operational and water chemistry/visibility acceptable.



## Next Steps

Final segmentation and packaging of Jet Pump Diffusers ongoing.

Preparations commenced for:

1. Cutting of Nozzles
2. Reactor Vessel segmentation

RV Closure  
Head

Steam  
Dryer

Steam  
Separator

Upper  
Core Grid

Guide  
Tubes

Core Plate  
Assembly

Shroud  
Cylinder

Jet Pump  
Assemblies

RV  
Nozzles

Reactor  
Vessel

# Reactor Vessel Segmentation Operations



Jet Pump Riser inlet pipe severed at vessel wall

Transferring Riser Pipe to SFP for segmentation





# Reactor Vessel Segmentation Operations



Jet Pump Inlet Riser Pipes are 13 feet long and segmented with specialty cutting tools

# Reactor Vessel Segmentation Operations

08-19-2021 Thu 10:17:21



Jet Pump Diffuser removal

Jet Pump D/P Instrument Piping removal

08-20-2021 Fri 13:52:01





# Refuel Floor Support Activities



Filter Basket being lifted from a Cask Liner on the Refuel Floor

# Refuel Floor Support Activities

Demobilizing to make room for next sequence activities



Removing the racks that once held Core Shroud segments in the Spent Fuel Pool, as they are no longer needed



Racks decontaminated and packaged for shipment



# Cask Transfer Operations

(1) Out of the Reactor Cavity/SFP



(3) Ready to “down-end” onto Transport Trailer



(2) Down from the Refuel Floor





# Cask Transfer Operations

Moving loaded Transfer Trailer with the “Tugger”



Transfer into the HTS (Storage Vault)





# Intake Structure Demo Prep/Equipment Removal

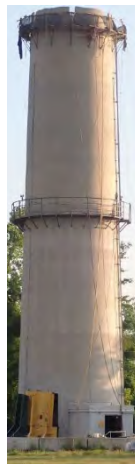
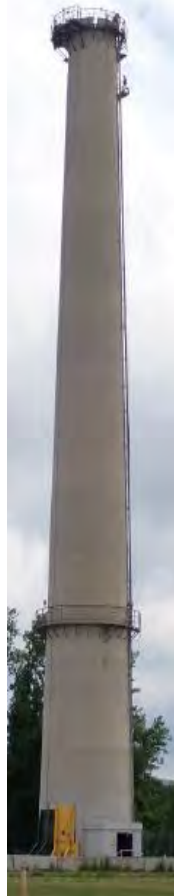


Foreground: Traveling Screens dismantlement

Background: Chemical Treatment Shed removed



# Stack Demolition



5/20/21-6/23/29

(Zooming in)



7/13/21 completed Demo from 100'  
to ground with NorthStar Hi-Reach  
Excavator



# Admin Building Demo Preps

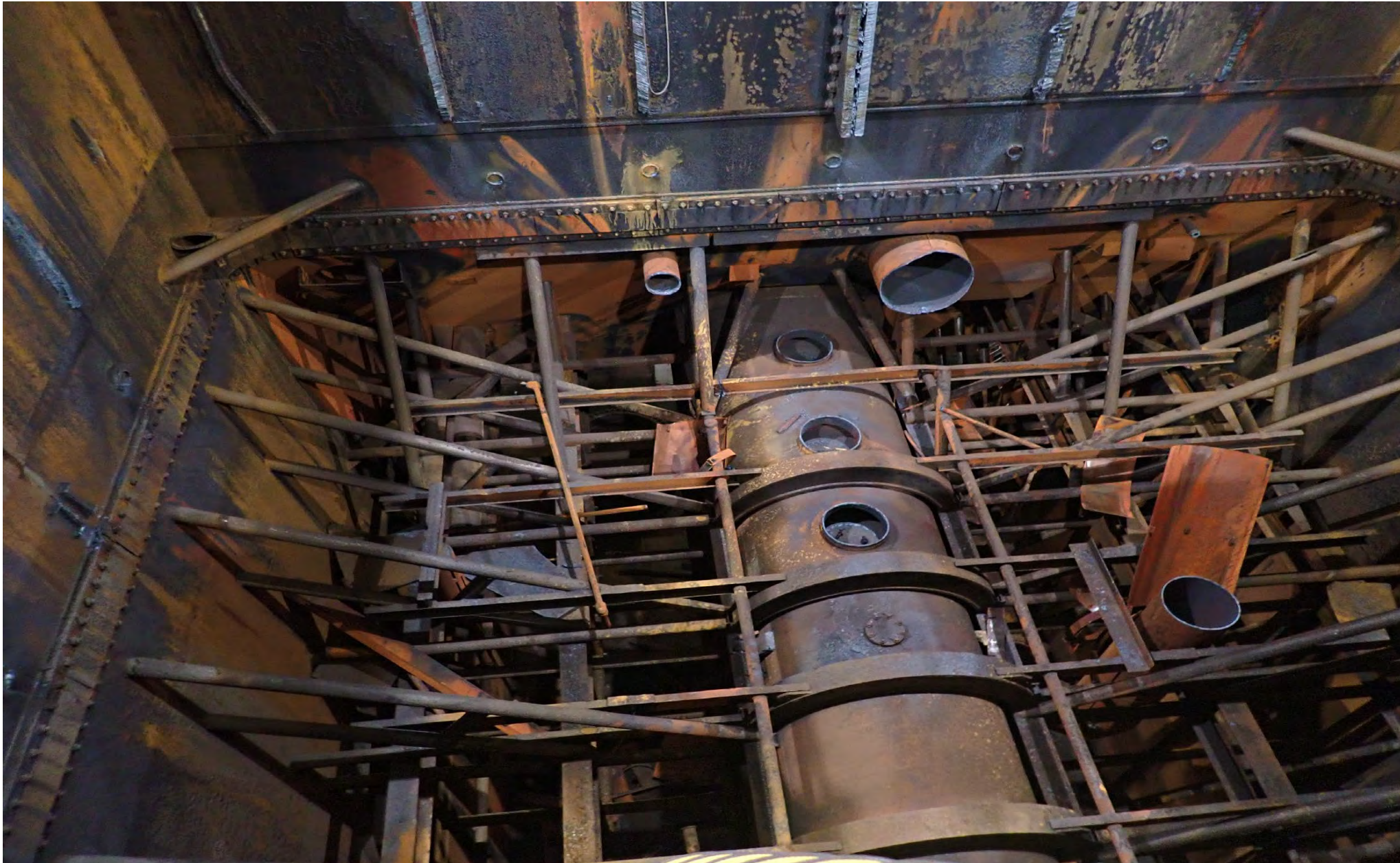


Relocation of personnel, removal of all furniture, materials, universal waste, & structural separation from service building in preparation for demolition



# Main Condenser Demo continues (top view)

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# Main Condenser Demo continues (side view)





# Creating new access hatchways for RadWaste Bldg Demo





# RadWaste Bldg Demo/Tank Removal



# 500,000 gal Condensate Storage Tank Demo





# MP197HB transport Cask annual maintenance & inspection





# Transportation of waste to WCS in Texas





# Preventative Maintenance on Railtracks

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## Shipping and Material Volumes

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- Currently shipping about 3 rail cars per week to WCS  
(106 shipments consisting of 89 railcars and 17 trucks shipped YTD / about 13 per month)
- Total Number of Shipments to Date: 320
- Total Volume 677,300 ft<sup>3</sup> (25,086 cyd)
- Total Weight 34,520,000 lbs (17,200 tons)
- Total Activity 25,850 curies



# Non-Rad Site Characterization/Remediation

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## What else is happening?

- Risk Evaluation still under ANR/DOH review. No new Areas of impact identified.
- Dewatering to mitigate ingress of groundwater into Turbine Building on going at rate of about 15k GPD. (No rad/chemicals detected to date; as expected)
- Split sampling continues with ATC in coordination with ANR. Current collection scheduled week of 9/13/21, previous samples taken 6/2/2. (All sample data continues to correlate)
- Annual Groundwater Report approved by ANR.
- Post Demolition Survey & Sample Plan approved by ANR.
- Continued collaboration with VT ANR, DEC via Bi-Weekly calls to maintain alignment.

# Questions?

Target Zero (  Accidents) Do It Right. Do It Safe.

